

## INTRO

The purpose of this rebuild was to redesign the Robotito to make its build more equivalent and compatible with the versions of robots used for the Introduction to Mobile Robots Class. This entailed redesigning the wheels, frame, battery carriage, component interfaces, and software for each component. The top of the frame (Sensor holder) was used on the build, although a new revision was made to fit the VL53L0X Time of Flight infrared distance sensors.

All 3D printed parts were modeled in Blender and reside in the V3>Parts folder in the robotito repository. The schematics were created using a prototyping program called Fritzing.

The code written was to make simple interfaces between the Raspberry Pi 3 to the VL53L0X infrared sensors, the motor driver, hall sensor encoders, and the Pi Camera V2.

There are test programs for the sensors, motors, and for the Pi Camera V2.

The Robotito was connected via SSH into the Raspberry Pi. The Pi also has VNC on it for connecting through the schools network.

## FILES

All project files reside in the V3 folder within the robotito-master repository

>V3

- > Code: Contains, you guessed it, the source code.
- > Various python libraries...3 folders with libraries for sensors, Motor\_HAT, VL53L0X sensors and SSD1306 LCD(No longer used on the robotito) and 4 test libraries(PiGPIO, gpiotest\_master, python-spi, wiring pi(These were used for testing various IO Pins for troubleshooting problematic components)
- > robotito:
  - >drawMap.py: Unfinished script used to draw a map from sensor information.
  - >Encoder.py: Class Encoders
  - >Functions.py: Holds the functions for robotito
  - >MotorDriver.py: Class Motordriver
  - >Sensors.py: Class Sensors
  - >robotito.py: A test script that allows a user to control robotito through the command line
- >Datasheets: Contains all datasheets for the components used.
- >Parts: Contains blender files, as well as corresponding .stl format files for 3D printing.  
Parts were printed by the Advanced Visualization Center, under the RoboBulls account
- >Pictures: Contains pictures of the build process.
- >Schematics: Contains the wiring diagrams in .jpg format, and the Fritzing files to analyze or augment them.
- >rosRobotitoPackage: Contains the beginning of the Robotito Package.
- >PartsToOrder.xlsx: Contains the sources for the parts ordered.